Problem A. Math

Time limit	1000 ms
Mem limit	262144 kB
Input file	stdin
Output file	stdout

Fedya studies in a gymnasium. Fedya's maths hometask is to calculate the following expression:

$$(1^n + 2^n + 3^n + 4^n) \ mod \ 5$$

for given value of n. Fedya managed to complete the task. Can you? Note that given number n can be extremely large (e.g. it can exceed any integer type of your programming language).

Input

The single line contains a single integer n ($0 \le n \le 10^{10^5}$). The number doesn't contain any leading zeroes.

Output

Print the value of the expression without leading zeros.

Examples

Input	Output
4	4

Input	Output
124356983594583453458888889	0

Note

Operation $x \ mod \ y$ means taking remainder after division x by y.

Note to the first sample:

$$(1^4+2^4+3^4+4^4) \mod 5 = (1+16+81+256) \mod 5 = 354 \mod 5 = 4$$